

103. An isolated antibody that binds specifically to the Hu-Asp polypeptide of any of claims 100-102.

104. A cell according to claim 98 that is a bacterial cell

105. A bacterial cell of claim 104 where the bacteria is *E coli*.

106. A cell according to any one of claims 27-36 or 98 that is a eukaryotic cell.

107. A cell according to any one of claims 27-36 or 98 that is an insect cell.

108. An insect cell of claim 107 where the insect is sf9, or High 5.

109. An insect cell of claim 107 where the insect cell is High 5.

110. A cell according to any one of claims 27-36 or 98 that is a mammalian cell.

111. A mammalian cell of claim 110 selected from the group consisting of human, rodent, lagomorph, and primate cells.

112. A mammalian cell of claim 111 that is a human cell.

113. A mammalian cell of claim 112 selected from the group consisting of HEK293 and IMR-32 cells.

114. A mammalian cell of claim 111 that is a primate cell.

115. A primate cell of claim 114 that is a COS-7 cell.

116. A mammalian cell of claim 111 that is a rodent cell.

117. A rodent cell of claim 116 selected from, CHO-K1, Neuro-2A, 3T3 cells.

118. A cell according to any one of claims 27-36 or 98 that is a yeast cell.

119. A cell according to any one of claims 27-36 or 98 that is an avian cell.
120. Any isoform of Amyloid Precursor Protein (APP) modified such that the last two carboxy terminus amino acids of that isoform are both lysine residues.
121. The isoform of APP from claim 130 comprising the isoform known as APP695 modified so that its last two carboxy terminus amino acids are lysines.
122. The isoform of claim 121 comprising SEQ. ID. 16.
123. The isoform variant of claim 121 comprising SEQ. ID. NO. 18 or 20.
124. A nucleic acid encoding a polypeptide according to any of claims 120-123.
125. An eukaryotic cell comprising a nucleic acids of claim 124.
126. An eukaryotic cell comprising a polypeptide of claim 120-123.
127. An eukaryotic cell according to claim 125 or 126 that is a mammalian cell.
128. A mammalian cell according to claim 127, selected from the group consisting of HEK293 and Neuro2a.
129. A method according to any of claims 39, 41-50, 54, 56, and 71-73 in which the determining or measuring step comprises measuring the amount of amyloid beta-peptide released into growth medium of the cell and/or the amount of CTF99 fragments of APP in cell lysates.
130. The method of claim 129 wherein the cell is from a human, rodent or insect cell line.

131. A method for identifying agents that modulate the activity of human Asp1 aspartyl protease (Hu-Asp1), comprising the steps of:

- (a) contacting amyloid precursor protein (APP) and a Hu-Asp1 polypeptide in the presence and absence of a test agent;
- (b) determining the APP processing activity of the polypeptide in the presence and absence of the test agent; and
- (c) comparing the APP processing activity of the polypeptide in the presence of the test agent to the activity in the absence of the test agent to identify an agent that modulates the APP processing activity of the polypeptide, wherein a modulator that is an Asp1 inhibitor reduces such cleavage and a modulator that is a Asp1 agonist increases such cleavage.

132. A method according to claim 131 wherein the polypeptide is the polypeptide of claim 100.

133. A method according to claim 131, wherein the polypeptide is a recombinant polypeptide purified and isolated from a cell transformed or transfected with a polynucleotide comprising a nucleotide sequence that encodes the polypeptide.

134. A method according to claim 131 or 132, wherein the polypeptide is expressed in a cell transformed or transfected with a polynucleotide comprising a nucleotide sequence that encodes the polypeptide, wherein the contacting comprises growing the cell in the presence and absence of the test agent, and wherein the determining step comprises measuring APP processing activity of the cell.

135. A method according to claim 134, wherein the determining step comprises measuring the production of amyloid beta peptide by the cell in the presence and absence of the test agent.

136. A method according to claim 134 or 135, wherein the cell is a human embryonic kidney cell line 293 (HEK293) cell.